



Infectious Disease Epidemiology Section
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BLASTOMYCOSIS

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Blastomycosis is a fungal infection caused by *Blastomyces dermatitidis*. The organism is inhaled and typically causes an acute pulmonary infection. However, cutaneous and disseminated forms can occur, as well as, asymptomatic self-limited infections.

Epidemiology

The disease is transmitted by inhaling spore-laden dust. Person-to-person transmission does not occur. The endemic areas in the United States include the southeast and southcentral states and the Great Lakes region.

In Louisiana, the majority of cases have been reported from Washington Parish (a total of 30 cases were detected during 1976-1985). Washington Parish is one of the few predominantly forested parishes; given its other attributes (acidic soil, low elevation, relatively high rainfall), the environmental conditions seem particularly favorable for growth of *B. dermatitidis*.

Sporadic cases indicated that middle-aged men with outdoor occupations that exposed them to soil were at greatest risk for blastomycosis. Analysis of demographics of foci indicates that there is no sex, age, race, occupational, or seasonal predilection for blastomycosis. Exposure to soil, whether at work or at play, appears to be the common link in reports of sporadic disease and outbreaks.

The rarity of the natural disease and of laboratory-acquired infections suggest man is relatively resistant.

The incubation period for blastomycosis is approximately 30 to 45 days..

Clinical Description

Blastomyces dermatitidis causes a systemic pyogranulomatous disease: blastomycosis. Initial infection is through the lungs and is often subclinical. Hematogenous dissemination may occur, culminating in a disease with diverse manifestations.

Infection may be asymptomatic or associated with acute, chronic, or fulminant disease.

- Skin lesions can be nodular, verrucous (often mistaken for squamous cell carcinoma), or ulcerative, with minimal inflammation.
- Abscesses generally are subcutaneous cold abscesses but may occur in any organ.
- Pulmonary disease consists of a chronic pneumonia, including productive cough, hemoptysis, weight loss, and pleuritic chest pain.
- Disseminated blastomycosis usually begins with pulmonary infection and can involve the skin, bones, central nervous system, abdominal viscera, and kidneys. Intrauterine or congenital infections occur rarely.

Laboratory Tests

Sputum or pus is easily examined by wet preparation. A drop of the specimen is placed on a microscope slide, covered with a coverslip, and examined under the high dry objective. Although 10% potassium hydroxide has been recommended to aid in finding the organism, it is usually not necessary, as the large, characteristic yeast cell is easily seen despite cellular debris. Body fluids such as urine, pleural fluid, or cerebrospinal fluid should be centrifuged and the sediment evaluated in the same way

The yeast looks like a thick-walled, figure-of-eight, broad-based, single-budding cell form.

Surveillance

Blastomycosis is a reportable condition in Louisiana because of concerns about the focus in South-east Louisiana. Because Louisiana appears to have a potential high risk area and because of a lack of sufficient data, blastomycosis was added to the list of reportable diseases as of September 1988.

Case Definition

A case of blastomycosis is defined as an illness characterized by clinical manifestations relating to pulmonary, cutaneous, or disseminated disease and is laboratory confirmed.

A case of blastomycosis is confirmed by:

- Identification of the organism from a culture of sputum, cerebrospinal fluid (CSF), urine, or lesions
- Positive immunodiffusion test, or
- Chemiluminescent DNA probe.

Report, Confirmation and Investigation

The purpose of investigation is to identify cases, to facilitate the identification of potential high-risk areas, to assist the private physician in recommendations for appropriate treatment.

- Upon receipt of a report of a case of blastomycosis, contact the physician and/or hospital to confirm the diagnosis. Make sure the diagnosis is laboratory confirmed.
- Since the disease is prevalent in dogs, it may be advantageous to document whether the patient has a pet dog that was recently diagnosed as having blastomycosis.
- Attempt to verify whether the patient had lived in or moved from an area where other cases have been identified.

Treatment

Amphotericin B is the drug of choice for severe infections. Ketoconazole or oral itraconazole can be used for mild to moderate infections.

Isolation of the Hospitalized Patient: Standard precautions are recommended.